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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,542	06/23/2003	Haruo Miura	100154.52518US	5762
23911	7590	09/20/2005	EXAMINER	
CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			RODRIGUEZ, WILLIAM H	
			ART UNIT	PAPER NUMBER
			3746	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/600,542

Applicant(s)

MIURA ET AL.

Examiner

William H. Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 10 and 14 is/are rejected.
- 7) ☒ Claim(s) 6, 8, 9, 11-13 and 15-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/23/03; 11/24/04</u> | 6) <input checked="" type="checkbox"/> Other: <u>IDS filed 2/23/05</u>                 |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said intermediate plunger" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 recites the limitation "said guide portion" in line 4. It is unclear to what guide portion is this limitation referring back to, the large diametric guiding portion or the small diametric guiding portion. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 7, 10 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by **Wahrenberger (US 3,657,973)**.

With respect to claim 1, **Wahrenberger** teaches a reciprocating compressor, comprising: a crankshaft 3; a connecting rod 4, one end thereof being to said crankshaft; a crosshead 5, being

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connected with the other end of said connecting rod, as well as, a pair of intermediate shafts 10, each of which extends in opposing directions to each other; a pair of plungers 15, each of which is connected to each of said intermediate shafts; and cylinders 17, each receiving a tip portion of said plunger therein, wherein said pair of plungers moves reciprocally on almost same axis, and said crosshead is formed in one body. See **Figure 1** of Wahrenberger.

With respect to claim 2, **Wahrenberger** teaches that the reciprocating compressor further comprises a crankcase 2 for receiving said crankshaft, said crosshead and said connecting rod therein, wherein on a side surface of said crankcase is formed an opening portion for installing or taking out said crankshaft. See **Figure 1** of Wahrenberger.

With respect to claim 3, **Wahrenberger** teaches that a gas is compressed by one of said plungers is guided into a compression space which is defined between the other of said plungers and one of said cylinder. See **Figure 1** of Wahrenberger.

With respect to claim 4, **Wahrenberger** teaches that the connecting rod 4 has a first member and a second member, being formed into two divided shape and linked with said crankshaft, and a third member linked with a cross pin provided at a connection portion with said crosshead. See **Figure 1** of Wahrenberger.

With respect to claim 7, **Wahrenberger** teaches rod-packing seals 36, which are laminated in multiple-stages in an axial direction thereof, are provided on an outer periphery side of said each plunger, and said rod packing seals are divided into a high-pressure side seal portion and a low pressure side seal portion by conducting a middle portion of said rod packing seals in an axial direction thereof to a suction flow passage of gas sucked into said compressor. See **Figure 1** of Wahrenberger.

With respect to claim 10, **Wahrenberger** teaches a reciprocating compressor of two stages, having: a crankshaft 3; and a pair of plungers 15, said plungers being disposed on sides opposing to each other, so as to put the crankshaft therebetween on a same axis thereof, wherein operating gas is compressed by converting rotating movement of said crankshaft into reciprocating movement of said pair of plungers, and further comprising: rod packing seals 36, each being formed in multiple-stages in an axial direction thereof and disposed on an outer periphery portions of each of said plungers; cylinder rings 18, being disposed on said rod packing seals at a tip side of each of said plungers; and cylinder cases 17, each being provided for covering an outer periphery portions of said rod packing seal and said cylinder ring, which are made to be almost same in an outer diameter thereof, wherein fine gap passages are formed between said cylinder case and an outer peripheries of said rod packing seals and said cylinder ring, conducting in an axial direction of said plunger, thereby making up a leakage passage of the operating gas with said fine gas passages. See **Figure 1** of **Wahrenberger**.

With respect to claim 14, **Wahrenberger** teaches that one of said plungers 15 and said crankshaft 3 are connected with each other through a connecting rod 4, a crosshead 5 and a shaft 10, while other of said plungers is connected to said crosshead through other shaft. See **Figure 1** of **Wahrenberger**.

5. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by **Miser (US 6,164,188)**.

With respect to claim 1, **Miser** teaches a reciprocating compressor, comprising: a crankshaft 16; a connecting rod 20, one end thereof being to said crankshaft; a crosshead 30,

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being connected with the other end of said connecting rod, as well as, a pair of intermediate shafts 40, each of which extends in opposing directions to each other; a pair of plungers 42, each of which is connected to each of said intermediate shafts; and cylinders 48, each receiving a tip portion of said plunger therein, wherein said pair of plungers moves reciprocally on almost same axis, and said crosshead is formed in one body. See **Figure 1** of Miser.

With respect to claim 2, **Miser** teaches that the reciprocating compressor further comprises a crankcase 12 for receiving said crankshaft, said crosshead and said connecting rod therein, wherein on a side surface of said crankcase is formed an opening portion for installing or taking out said crankshaft. See **Figure 1** of Miser.

With respect to claim 3, **Miser** teaches that a gas is compressed by one of said plungers is guided into a compression space which is defined between the other of said plungers and one of said cylinder. See **Figure 1** of Miser.

With respect to claim 5, **Miser** teaches that each of said pair of shafts has a large diametric guiding portion for guiding said plunger to move reciprocally, and a small diametric portion located within said guide portion on a side of said plunger. See **Figure 1** of Miser.

***Allowable Subject Matter***

6. Claims 6, 8 and 9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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Claims 11-13 and 15-17 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by **Kugelev et al.** (US 5,823,093).

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by **Stogner** (US 5,507,219).

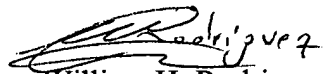
### ***Contact information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Rodriguez whose telephone number is 571-272-4831. The examiner can normally be reached on Monday-Friday 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on 571-272-4444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
William H. Rodriguez  
Examiner  
Art Unit 3746

7/14/07